

project WEB

Spring
2006

Connecting Projects WILD, WET and Learning Tree in New Hampshire

The Natural Classroom

by Beth Lesure, N.H. Project Learning Tree

I have fond memories of joining the third grade bird club. We were a group of 9-year olds who passed up recess to walk through the schoolyard, seeking out the most interesting birds, using our binoculars and field guides to identify them and giving reports to the rest of the class on what we found. During recess and after school, we'd flock to the forbidden mica pits, full of curiosity and drawn to the "strange rocks" in our schoolyard.

The highlight of fifth grade was a trip to "nature camp," a weeklong adventure to the woods, where we learned everything from predator-prey relationships, to pond ecology, to photography, to theatre. Imagine our joy when we got to return there in seventh grade! The outdoors was truly an extension of the classroom, a place to continue studying our world.

Today's teachers face many of the same demands that my teachers faced, and more. Increasing curriculum requirements, growing class sizes, health and safety concerns and a decrease in available class time make it more difficult than ever to get students outdoors to explore their schoolyards, local forests, city parks, rivers and other local natural areas. In spite of these challenges, New Hampshire has many great teachers who work tirelessly to ensure that their students, of every grade and subject, learn as much about the natural world as they can.

This issue of Project WEB highlights some of the outdoor concerns that New Hampshire's teachers face today, strategies for safely exploring our natural world and testimonials from teachers who find a way to take their students' learning outdoors.



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"Nature and books
belong to the eyes that
see them."
- Ralph Waldo Emerson



Nature's Classroom

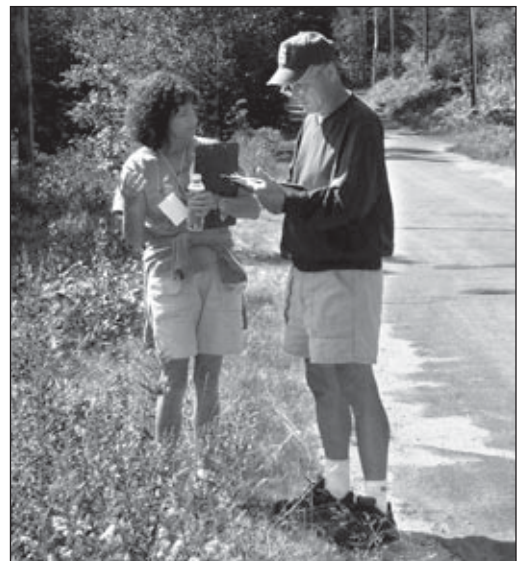
I'm up to the challenge!

by Donna Furlong

As teachers, we are sometimes bogged down with testing requirements, special education issues and all the "stuff" we're supposed to teach students. As a new educator, I have embarked on a journey to create fun and exciting lessons that will make my students dive deeper and go exploring on their own. Not an easy feat, but I'm up to the challenge!

The most important thing about getting your students outdoors is that they almost forget they're in school. How is this a good thing, you ask? They are suddenly more willing to ask questions, to put their hands in the earth and to start working together to solve any dilemma put in front of them.

Recently, I asked my fifth graders why it was important to keep the water in the Contoocook River



Summer teacher institutes provide opportunities to brush up on field study skills.



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CLASSROOM continued on page 8

Bees, Wasps and other Stinging Insects

Stinging insects will usually not sting unless provoked. Typical stinging insects that you might see on a class outing are honeybees, yellow jackets, hornets and wasps.

- **Honeybees** are the most common of these insects. They are not typically aggressive unless bothered. Once they sting, they die and the stinger is often left in the skin.

- **Yellow jackets** are the most aggressive of the stinging insects. They hover around garbage cans or wherever exposed food is found. They are especially attracted to sugar (i.e., soda cans). Yellow jackets can and will sting repeatedly.

- **Hornets** nest in trees and bushes and also will sting repeatedly.

- **Wasps** build nests in dark areas of buildings or under rafters; they will sting repeatedly, too.

Avoidance Is the Best Tactic

Before going outside, explain to your students how they can reduce the risk of being stung by an insect. If you notice bees or wasps in your outdoor classroom area, plan

to avoid their nests. You may have students who are sensitive to bees, wasps and stinging insects. Remind your students to wear light-colored long pants, long-sleeve shirts and sturdy shoes. They should avoid wearing scents such as perfume, cologne, scented shampoo and aftershave.

When preparing to go take your students on a field trip, you need to check with the school nurse to find out if there are any children with an allergy to bee stings. You should then take the appropriate precautions.

Treatment for Stings

If someone gets stung, he or she will exhibit redness or slight swelling in the area of the sting. It's a good idea to bring anyone stung by a stinging insect to the school nurse! Apply ice to the area. If the stinger

remains in the skin, and you can't get to the nurse, use a sharp-edged tool (such as a credit card) to scrape the stinger out. Do not use tweezers, as you may inadvertently squeeze more venom into the skin and worsen the injury. If the person develops a widespread rash, wheezing or trouble breathing, severe swelling in the area of the sting, or has a loss of consciousness, seek medical attention. Either way, bring anyone stung by a stinging insect to the school nurse to be checked out.

WEB



Activities Related to Articles in This Issue

Project Learning Tree suggests:

Every day we are faced with situations that involve risks, and every day we make decisions about how to respond to those risks. In *Exploring Environmental Issues: Focus on Risk*, students learn to assess and manage environmental and human health issues. (PLT Secondary Module)

As humans, we depend on all of our senses to gather impressions of our environment. Our brains sort out the diversity of sizes, shapes and colors that we see. In *The Shape of Things*, students will focus on the many shapes that are found in both natural and built environments.

Throughout history, people have intentionally and unintentionally moved plant and animal species to new environ-

ments. In *Invasive Species*, students will research local invasive species to determine how these species got to their new locations and what characteristics make them so challenging.

Project WILD suggests:

In *Good Buddies* students research pairs of animals, play a card game and classify the pairs of animals according to three major forms of symbiotic relationships.

Students respond to a variety of images in *First Impressions* to study contributions of a range of animals, including those they sometimes fear.

Students learn how pesticides enter food chains, and the possible consequences when they do, by becoming hawks, shrews

and grasshoppers in the physically active *Hazardous Links, Deadly Solutions*.

Project WET suggests:

In *Common Water*, students role-play water usage spanning 200 years and discuss quantity and quality issues that arise.

Stream Sense offers students a chance to use their five senses to discover the wonder of a local stream. Many educators pair this activity with the *Water Log* activity.

Students will conduct simulations, build models, and solve a mini-mystery in order to compare the economic and ecological costs of different irrigation systems in *Irrigation Interpretation*.

WEB

Few outdoor activities are as much fun for a class as a hike in the woods, but a medical emergency or a lost student can be a difficult situation if you're not prepared. The hikeSafe educational safety initiative is a program developed jointly by the New Hampshire Fish and Game and the White Mountain National Forest. Introduced in 2003, hikeSafe was developed in response to an increase in the number of search and rescue incidents and their related costs and risk to responders.


Designed to reduce the number of unprepared hikers in the White Mountains, the hikeSafe program includes a hiker responsibility code, brochures, a "ten essentials" hiking gear list, a website and presentations targeting both adults and children.

The hiker responsibility code stresses that it is every individual's responsibility when setting out on a hike to be prepared with knowledge and appropriate gear, to leave your hiking plans with someone, to stay together and not separate from your

group, to turn back when the situation warrants, to know how to handle emergencies and, finally, to share the code with others.

The hikeSafe message encourages everyone to take along a map and compass (and know how to use them!), warm clothing, extra food and water, flashlight, fire-starter, first aid kit, whistle, rain gear and a pocketknife. Having the right gear enables hikers to deal with many situations that could endanger them.

The hikeSafe message for children has some additional components. Children are encouraged to carry their own gear, especially the ten essentials. They need to be prepared if they become separated from the adults in their group. It is important that children know that if they become lost, they should stay in one place, blow their whistle three times every few minutes and not hide. Often children hide from searchers, because they are afraid their parents or other adults will punish them for getting lost. Children need to know that their parents will be happy when they are found.

For more information on how you can hike safely, and take advantage of hikeSafe's educational programs and initiatives, visit www.hikesafe.com. 



Outside in the Heat and Cold

People vary widely in their ability to tolerate heat and cold. Factors that may influence this include age, fitness, hydration, illness, drugs and medication, and fatigue. During outdoor classes, always be aware of how the temperature and weather may be affecting your students. Take breaks if needed to hydrate, cool off or warm up. In order to have a safe and fun experience, remember these tips whenever taking your class outside.

Too hot...

Heat injuries occur when the body's core temperature rises beyond safe levels. People exposed to too much heat can experience heat cramps, heat exhaustion and heat stroke.

To prevent injury from sun and heat exposure, follow these tips:

- Keep your head and face cool and protected from damaging sun exposure. Wear a hat to protect your neck, face, and ears.
- Wear a light-colored, loose-fitting long-sleeved shirt.
- Drink water frequently.

- Take frequent breaks in the shade or in a cool environment during the hottest times of the day, typically 10 a.m. – 3 p.m. If possible, limit outdoor exposure during these times.

- Wear sunscreen that has an SPF of at least 15.

Move anyone affected by heat to a cool, shady area, loosen their clothing, offer cool water to sip (if they are conscious), apply cool cloths to their skin, have them rest with their feet above heart level. If they do not recover quickly, seek medical attention.

Brrr...

Cold injuries occur when the body's core temperature drops beyond safe levels. People exposed to cold may experience frostnip, frostbite and hypothermia. Frostnip is the first injury and usually affects the cheeks, nose, ears, fingers, and toes, leaving them white and numb. Frostbite occurs when frostnip goes untreated. It is the freezing of the skin's tissues. Hypothermia is a life-threatening medical emergency where the body loses too much heat. It typically

occurs on cold, wet, windy days with temperature between 30 and 50°F.

To prevent injury from the cold follow these tips:

- Dress properly: Wear several layers of loose-fitting clothing to insulate your body by trapping warm, dry air inside. Loosely woven wool or synthetic (i.e., nylon or polyester) clothes best trap air and resist dampness.

- The head and neck lose heat faster than any other parts of the body. Your cheeks, ears and nose are the most prone to frostbite. Wear a hat, scarf and turtleneck sweater to protect these areas.

- Stay active.
- Prevent dehydration: Drink warm water or beverages. Avoid caffeine.

Move anyone affected by cold to a warm place. Remove any constrictive clothing items. Place dry, sterile gauze between their toes and fingers to absorb moisture. Elevate the affected part (i.e., hand or foot) to reduce pain and swelling. Seek medical attention.

RISK and PREVENTION

We make choices throughout the day, from the moment we wake up, based on the perceived risks and benefits. Brush my teeth or not? Kellogg's Special K, or scrambled eggs with bacon? Drive or take public transportation? These intuitive judgments have been shaped/influenced by our personal experiences, interpersonal communications, and the media.

Perceived risk also plays a role in our decisions to spend time outdoors. (Risk perception is defined as "intuitive judgments made by citizens as opposed to technical assessments made by experts" - Slovic 1997.) Outdoors, we might encounter wildlife, including those that carry disease.

Is wildlife-related risk increasing? Populations of certain wildlife species are on the rise, in part as a result of restoration efforts and legal protection. Human populations are increasing as well, and expanding into wildlife habitats. Many people moving into the country from the city have a lack of experience and familiarity with wildlife. In addition, we have better reporting of wildlife-human incidents and conflicts. Perhaps it is that perceived risk that is increasing.

There are historic cases, dating back hundreds of years, of the same wildlife diseases we are dealing with today, including rabies and West Nile Virus. In all, there are 1,407 different species of human pathogens, and 816 (58%) of those are zoonotic, or borne by wildlife. Two of the greatest causes of their increased impact on humans have been changes in human land use and agricultural practices, and changes in human demographics – i.e., how many of us there are, where we live and how we use the land.

It is clear from the work of Richard Louv and the recent research from Cornell University that the benefits of taking



With a barbed mouth and special glue, the deer tick holds fast to its host while feeding.

children outdoors are significant -- for their own healthy development and for the future of our environmental resources. Don't let potential wildlife conflicts keep you and your students trapped indoors. Become better informed. Use the following fact sheets as one step in that direction. As long as you take some basic, sensible precautions, the advantages of providing the stimulating educational experience that can happen outdoors far outweighs the risk. Educate yourself – and your students – and get outside!

Lyme Disease

Borrelia burgdorferi is the bacterium in humans and animals that causes Lyme disease. In most cases, the bacteria are transmitted by the bite of an infected black leg tick (aka deer tick). If a tick feeds on an animal infected with Lyme disease and then on a person, the bacteria can be transmitted. Lyme disease was first detected in humans in 1977 in Lyme, Connecticut, where it infected a cluster of children. Ticks transmit the bacteria by inserting their mouths into the skin of a host and drawing blood.

Who is at risk for Lyme disease? Any person who spends any time in wooded or grassy areas or where ticks may be present is at risk for the disease. Lyme disease is not contagious and cannot be transmitted from person to person.

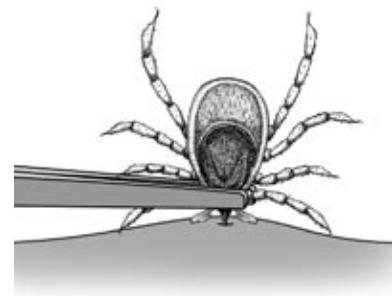
Protect yourself from ticks

If attached ticks are removed within 36 hours, the risk of tick-borne infection is minimal. When in wooded or grassy areas, you should do the following:

- Wear light-colored clothing to make the ticks easy to see (keep in mind that deer ticks are small – the size of the head of a pin).
- Tuck pants into socks and shirts into pants.
- Consider using an insect repellent.
- After every two or three hours of outdoor activity, check for ticks on clothing and skin.
- Complete a thorough check of your whole body for attached ticks at the end of the day.

How should a tick be removed?

It is important to remove a tick as soon as it is discovered. Use tweezers or fingers shielded with tissue or rubber gloves. Do not handle a tick with bare hands. Grasp the mouthparts of the tick with the tweezers or with your fingers, as close to the skin site as possible. Be careful not to squeeze, crush or puncture the body of the tick, as you may come in contact with infectious fluids. After removing the tick, thoroughly disinfect the tick site with rubbing alcohol or an antibacterial wash and then wash your hands with hot water and soap. See or call a doctor if there are concerns about incomplete tick removal.



Symptoms of Lyme disease

Symptoms usually begin within a month of exposure. The illness often starts as a large, reddish circular rash near the site of a tick bite. Other symptoms, such as chills, fever and muscle or joint pain, may

Protect Yourself!

If outside during evening, nighttime and dawn hours when mosquitoes are most active and likely to bite, wear protective clothing such as long pants, long-sleeved shirts and socks.

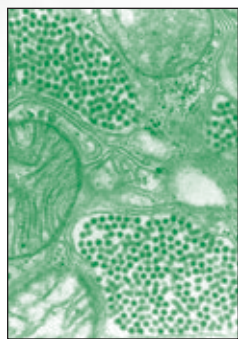
Consider using an effective insect repellent, such as one containing 30% or less of DEET (N,N-diethyl-methyl-meta-toluamide), for children and adults. Use DEET according to the manufacturer's directions. Children should not apply DEET to themselves. Repellents that contain Picaridin or oil of lemon eucalyptus are also effective. Vitamin B, ultrasonic devices, incense and bug zappers have not been shown to be effective in preventing mosquito bites.

be present and may last for several weeks. If the disease is left untreated, complications such as meningitis, facial palsy, arthritis and heart abnormalities may occur and other body systems may be affected. Swelling and pain in the large joints (i.e., knees) may recur over many years. These later symptoms may appear in people who did not have early symptoms or did not recognize them.

Adapted from N.H. Department of Health and Human Services Lyme Disease Fact Sheet at www.dhhs.nh.gov/DHHS/CDCS/LIBRARY/Fact+Sheet/lyme-disease.htm.

Eastern Equine Encephalitis

Eastern equine encephalitis (EEE) is a rare but serious viral disease. EEE is an arbovirus (short for arthropod-borne) that is carried by mosquitoes. When a mosquito bites an infected bird, the mosquito becomes infected. These infected mosquitoes can then transmit the virus to the animals they bite, including horses and, rarely, humans. No known transmission has occurred from birds to people. However, since dead birds may have the virus, you should not handle birds or any dead animals with your bare hands.



The EEE virus (mag. @84,000x)

© PHIL F. MURPHY & S. WHITEFIELD PHOTO

Who is at risk for EEE?

EEE is a rare disease, with fewer than five cases reported in the U.S. in most years. There is concern, however, that EEE is re-emerging. In New Hampshire, there were several human cases in the past 25 years. Anyone can catch EEE, but some people are at increased risk, such as those living in or visiting areas where the disease is common, people who work outside or participate in outdoor recreational activities in areas where the disease is common. Children and those over age 55 are more susceptible to the disease. The risk of getting EEE is highest from late July through September.

Symptoms and treatment

Symptoms of EEE usually appear four to ten days after the bite of an infected mosquito. Diagnosis is based on tests of blood or spinal fluid. Infection can cause a range

of symptoms. While most people have no symptoms, others get a mild flu-like illness with fever, headache and sore throat. Some people's central nervous systems, however, become infected, resulting in a sudden high fever (103°F to 106°F), severe headaches, and a stiff neck, which can be quickly followed by seizures and coma. About one-third of these patients die from the disease. Of those that survive, many suffer permanent brain damage and require lifetime institutional care.

There is no specific treatment for EEE. Care of patients centers around treatment of symptoms and complications.

Adapted from the N.H. Department of Health and Human Services EEE Fact Sheet at www.dhhs.state.nh.us/DHHS/CDCS/West+Nile+Virus/default.htm.

West Nile Virus

West Nile Virus (WNV) was first seen in the U.S. in 1999, in the Queens area of New York City. Like Eastern Equine Encephalitis, West Nile Virus is passed bird to bird by certain types of mosquitoes. Occasionally, an infected mosquito will pass the virus to humans or other animals.

Who is at risk for West Nile Virus?

Most healthy people don't get sick from the virus, but sometimes it may cause symptoms. Like EEE, West Nile Virus is not spread by person-to-person contact such as touching, kissing or caring for someone who is infected. No known transmission has occurred from birds to people, however, since dead birds may have the virus, you should not handle birds or any dead animals with your bare hands.

Many teachers and parents wonder if children bitten by mosquitoes at school should be tested for WNV. The answer is no, they don't need to be tested, because most mosquitoes are not infected with the WNV. Even in areas where mosquitoes do carry the virus, less than 1% of the insects are infected. Therefore, the chance that one bite will be from an infected mosquito is very small.

Minimize Exposure to Mosquito-borne Diseases

In warm weather, mosquitoes can breed in any puddle that lasts more than 4 days! To minimize exposure, eliminate standing water and other mosquito-breeding locations:

- Drill holes in the bottom of recycling containers that are left outside.
- Aerate garden ponds or stock them with fish.
- Turn over wheelbarrows and change water in birdbaths at least twice weekly.

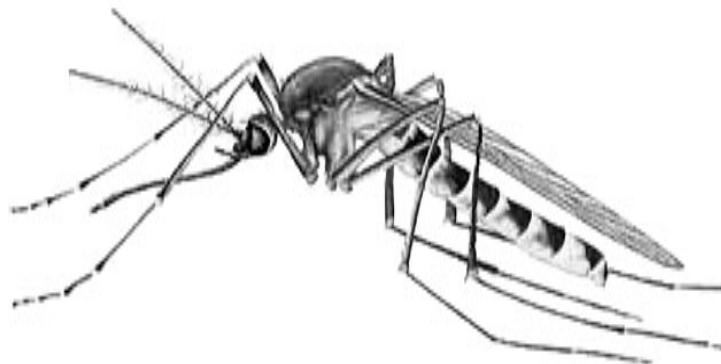
Be aware of where mosquitoes live and breed. Although mosquitoes lay their eggs in standing water, weeds, tall grass and bushes provide an outdoor home for the adult *Culex pipiens* mosquito (the common northern house mosquito), which is most commonly associated with West Nile Virus.

Symptoms of West Nile Virus

Most people who are bitten by mosquitoes carrying the WNV will experience no symptoms or very mild illnesses. The chances are slight that a child could become infected with WNV, but contact a doctor immediately if a child develops symptoms such as high fever, confusion, muscle weakness, severe headache, stiff neck, or if his or her eyes become sensitive to light.

Infected humans may have symptoms including encephalitis (inflammation of the brain) or meningitis (inflammation of the lining of the brain and spinal cord); these can also be caused by head injury, bacterial infections or, more commonly, by other viral infections.

Adapted from the N.H. Department of Health and Human Services West Nile Virus Fact Sheet at www.dhhs.state.nh/DHHS/CDCS/West+Nile+Virus/default.htm.



Transmission of the EEE virus comes through the bite of an infected mosquito.

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ANNOUNCEMENTS

Focus on NH Forests: A Project Learning Tree Workshop

November 1 from 3:30 - 6:30 p.m. and November 8 from 3:30 - 6:30 p.m. Squam Lakes Natural Science Center, Holderness. Registration fee \$35. One Graduate Credit available from Plymouth State University. For more information, contact Beth Lesure at (603) 226-0160 or email info@nhplt.org.

A Walk in the (Urban) Forest

PLT workshop for teachers interested in taking their students outdoors to investigate their schoolyard and local (urban) forest. Provides teachers and students with an opportunity to learn about trees, forests, the environment, and how foresters and Tree Farmers care for New Hampshire's forests and natural resources. Workshops will be held Tuesday, July 18, in Manchester and Keene. Contact Beth Lesure at (603) 226-0160 or email info@nhplt.org.

Environmental Change, Nature's Sure Thing!

Five-day, content-based workshop introduces participants to the concepts of equilibrium and change within natural systems. Topics include wetlands and forest succession, wildlife patterns and populations, biodiversity, management and much more. Content-based discussion with natural resource professionals, hands-on activities from Project Learning Tree, Project WET and Project WILD, and field trips to study human impacts and management techniques on the natural system. The workshop will run June 26-28 and July 27-28 in Concord. Three Graduate Credits available. Information and registration at www.des.nh.gov/wet/wetsched.htm or contact Robin Knight at (603) 206-6816 or email rknight@seresc.net.

Watershed Ecology Summer Institute

Ten-day summer course for science educators and community leaders. Held at Bow High School, July 24 - 28 and July 31 - August 4. Course uses watersheds as a framework for studying wetlands, rivers, streams, lakes and estuaries. Explore techniques for applying science in real-world situations, using hands-on, experiential learning. Participants will get curriculum materials and lots of ideas for classroom activities. Can be taken for 2 credits from the UNH Division of Continuing Education. Two weeks, 8:30 a.m. - 4 p.m., Monday through Friday. Con-

tact Judy Tumosa, Fish and Game Aquatic Resources Education, at (603) 271-3212 or visit www.wildlife.state.nh.us.

Curriculum Connections Through Schoolyard Investigations

Five-day professional development institute for K-8 educators, focused on investigating New Hampshire's rich natural landscape. Learn science content through study of the state's natural resources and landscape, explore skills and techniques to teach content to K-8 classes through problem-solving and inquiry-based schoolyard investigations, and design an interdisciplinary investigation. Held at Barry Conservation Camp in Berlin, N.H., from August 14-18. Four Graduate Credits available. All meals, lodging, instruction and manuals for Projects WET, WILD, Learning Tree, and Homes for Wildlife included in the \$150 registration. Contact Marilyn Wyzga at N.H. Fish and Game at (603) 271-3211 or email mwyzga@wildlife.state.nh.us.

PLT Resources Online

Are you looking for children's literature to supplement a PLT activity? Would you like to find a PLT activity that correlates to a specific book you're reading? Are you looking for supplemental resources for activities in the PLT PreK-8 Guide? Printable student pages, technology connections, stories, charts, illustrations and more are available at www.plt.org. Click on Curriculum, then PreK-8 Guide.

Interactive Lake Ecology Curriculum

Do you teach about lakes and ponds? Check out the N.H. Department of Environmental Services Interactive Lake Ecology Curriculum. Visit www.des.nh.gov/wmb/ILE or contact Alicia Carlson at (603) 271-0698 or e-mail acarlson@des.state.nh.us.

NALMS 2007 Lakes Appreciation Month Poster Contest

Students in grades 4-8 are eligible to participate. The winning poster will be displayed throughout the country on the 2007 NALMS Lakes Appreciation Month poster and will receive a \$100 cash prize. The school that the winner attends will receive a \$500 prize to use towards materials related to lake ecology.

Posters should focus on any lake or

watershed issue, and may include topics such as pollution, aquatic invasive species, aquatic life, aquatic plants, lake ecology and lake health. Posters should be no larger than 18 inches by 24 inches in size, and be in a style that is easily reproduced (i.e., crayon, watercolor, colored pencil, or marker).

Please include the student's name, school, teacher's name and school contact information on the back of the poster. Posters must be received by the NALMS Education Committee no later than October 31, 2006. Send posters to Amy Smagula, NHDES, 29 Hazen Drive, Concord, NH 03301. For more information, please contact Amy Smagula at (603) 271-2248, e-mail asmagula@des.state.nh.us or visit www.nalms.org.

Great American Secchi Dip

The Dip-In is a chance for lay people to take a water clarity measurement from a local lake, using a secchi disk. The dip-in goes from June 24 to July 16. Disks can be borrowed from the N.H. Department of Environmental Service or most local colleges or universities. For more information, visit dipin.kent.edu or contact Andrea Lamoreaux at (603) 271-2658.

2006 New England EE Conference

Reserve the weekend of September 29 to October 1 for the 40th annual New England Environmental Education Alliance conference in West Greenwich, RI. This year's conference is *Connecting to the Environment: Telling the Earth's Story*. Visit www.neeea.org this summer for information and registration materials.

Changing Minds: The Lasting Impact of School Trips

This research looks at the longer-term impact of out-of-classroom learning experiences on knowledge, attitudes, behavior, and decisions and choices children make. Researchers found that high quality out-of-classroom learning influenced how children behave and the lifestyle choices they make, demonstrating the potential for school trips not just to change children's lives, but the lives of whole communities. The complete study results are available online at: www.nationaltrust.org.uk/main/w-schools-guardianships-changing_minds.pdf.

ON THE H.O.M.E. FRONT

Safety Precautions in the Field

by Marilyn Wyzga

(excerpted from Homes for Wildlife: A Planning Guide for Habitat Enhancement on School Grounds, Marilyn Wyzga, N.H. Fish and Game Department, Concord, NH, 1998)

School grounds offer a wealth of opportunities for engaging study, inquiry-based learning and wildlife action projects. To make the most of this rich resource, prepare yourself and your students with practical information to protect both the inhabitants of the school grounds and yourselves.

Before heading out for the first exploration, invite your students to help draft a plan for being in the outdoor classroom. What should you all anticipate, know and agree on? How can you make your time outside educational and enjoyable? Before leaving the classroom, review the plan, so everyone remembers how to behave safely. Finally, spend as much time preparing your class to go outside, and reviewing the experience on your return to the classroom, as you do exploring and studying outdoors. This enhances and reinforces the outdoor learning experience. Here are some safety precautions to consider.

Dress for the Trail

Different habitats require different clothing. If wandering in mowed, cleared areas, wear closed-toe shoes (preferably sneakers) and socks that are pulled up. Hats, caps and shirts with sleeves will protect skin from the sun. If students are working in wooded areas or abandoned fields, they should also wear long pants and long socks (with socks pulled up over pant legs) and,

in some seasons, insect repellent. Deer and dog ticks will occur in grassy areas; check exposed areas of the skin when returning from being outdoors. (One enterprising outdoor leader in New Jersey makes a contest of it, having her students pair up and scan one another for ticks!)

Hand to Mouth

While most schoolyard organisms can be examined and handled with no harm or, at most, scratches from thorns or bites from grasshoppers, teach your students that careless handling can injure the plant or animal as well as themselves. Amphibians, for example, breathe in part through their skin; oils, lotions and insect repellents on human hands that handle amphibians can cause them harm. Rinse hands before and after handling salamanders, toads and frogs.

The hairs on many local caterpillars can irritate the skin or even give a sharp sting, as do the hairs on at least one common plant (stinging nettle). The damage potential of some organisms (bees, wasps, poison ivy) is well known, but do not assume that all your students share in that knowledge. Poison ivy occurs frequently, and it grows in several forms: perennial, shrub, and vine. A bee sting kit is a wise addition to your school's first aid kit. Teachers should already be aware of any children who have allergies to

insect stings or certain pollens.

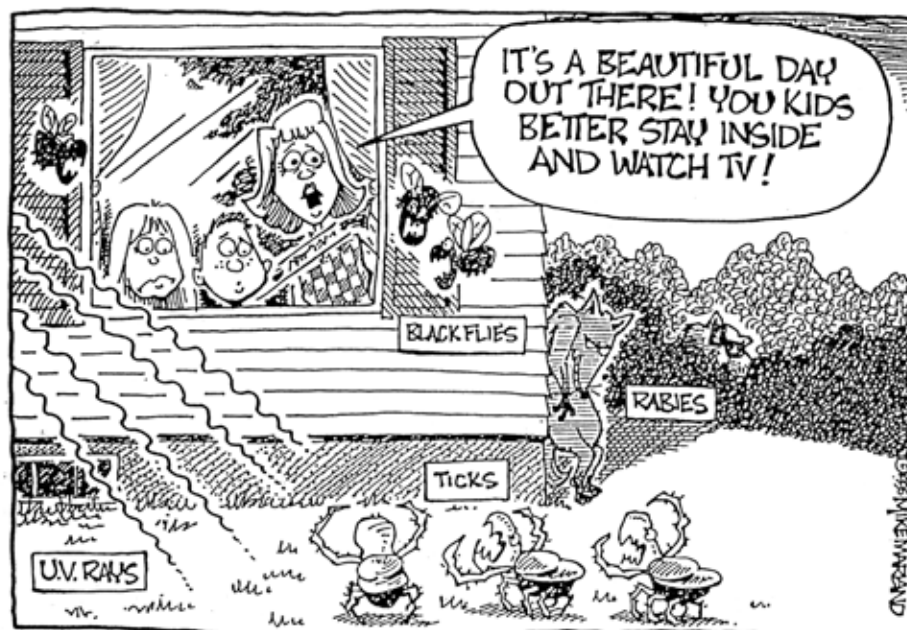
Warn students not to eat any schoolyard plants and animals. Although many brightly colored fruits are harmless (some leave a bad taste in your mouth), others can be poisonous. Some mushrooms can be deadly poisonous; students should be warned never to eat a wild mushroom of any variety, even when a self-professed expert on edible wild mushrooms is present. As a precaution, students should wash their hands after handling mushrooms. In fact, it is a good idea for students to wash their hands immediately after any schoolyard activity and to wear gloves when gardening.

Not a Petting Zoo

Contact with live or dead animals should be avoided, as some carry disease that can infect humans. (Permits are required to collect certain wildlife specimens; check with the N.H. Fish and Game Department for details). Bites and scratches from wild mammals are potentially serious and should receive professional medical attention. For example, raccoons, which have adapted to life in human communities and do not usually fear humans, can carry diseases such as distemper and rabies.

Finally, be ethical in your treatment of the wild species – both plants and animals

HOME continued on next page



The threats of the outdoors are manageable and can be minimized with a dose of practical information and preparation. Think of them as opportunities for learning.

clean. (We are fortunate that this river flows behind the schoolyard, and students often jump from the rope swing during the summer or cast a fishing line there in the early fall). All of the students use the water in one way or another; they just needed to be pushed into thinking about its importance.

The students started writing to local government and businesses to ask for their help in keeping the river clean. They worked together to put together a comprehensive study of the depth, width, temperature and physical and chemical properties of the river, and included these statistics in



Sampling macroinvertebrates is an important part of a river study program.

their letters. These fifth graders bonded with each other and were committed to improving the health of "their" river – and ultimately of the environment as a whole.

Planning a river study, or any outdoor activity, isn't as hard as some may think. Granted, it does take time (we all know there is never enough!) and organization on the teacher's part, but it's relatively easy to get team teachers, aides, parents, and even administration on your side. They want to see hands-on, integrated studies, where students are learning about their world and are confronting real-world problems. The time and the effort that it takes to prepare to take your students outside will pay off in the end. Once your students see that you are not afraid to get your hands dirty and your feet wet, they won't be afraid either.



Donna Furlong is a 5th grade teacher at Henniker Community School.

– that share your school grounds. Stay on designated paths to avoid trampling plants and compacting soil. If you move animals to another site for observation, return them to the place of capture when you are done. Any logs, boards or rocks that are turned over in the course of your investigations should be returned to their original position.

All of these recommendations provide tremendous learning opportunities as students discover the remarkable design, functions and behaviors of the natural world in which they live.

For more tips for the outdoor classroom, contact Marilyn Wyzga, N.H. Fish and Game Department, mwyzga@wildlife.state.nh.us, or (603) 271-3211.



Do you have an idea for a topic the WEB should address? If so, please contact Beth Lesure at (603) 226-0160 or info@nhplt.org.

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